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09/312,479	05/17/1999	ROBERT J. HENNICK	283_237.10 CPA	2665
128 7590 05/09/2008 HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245				
EXAMINER				
LUU, THANH X				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

09/312,479

**Applicant(s)**

HENNICK ET AL.

**Examiner**

Thanh X. Luu

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 73-75 and 109-136 is/are pending in the application.  
4a) Of the above claim(s) 121-127 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 73-75, 109-120 and 128-136 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 19 May 1999 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/3508)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 14, 2008 has been entered. Claims 73-75 and 109-136 are currently pending.
2. Claims 121-127 remain withdrawn. Applicant asserts that the election by original presentation (restriction) was improper because the limitation was searched before. This is found to be not persuasive. Original claim 25 is directed to a method having different process steps. Claims 121-127 are directed to a device having substantially different combinational structure from method claim 25. Contrary to Applicant's assertion, the combination device of claims 121-127 have not been searched before and is thus, burdensome. Therefore, the restriction is proper.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the planar solderable surfaces must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 73-75, 109 and 110 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. It is unclear where Applicant originally discloses "a planar solderable surface formed on each of said optical subassembly and said substantially rigid planar member". Applicant points to paragraphs [0028]-[0029] of the PG PUB. However, Applicant fails to explain how the two paragraphs support such language.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 128-130, 132, 133 are rejected under 35 U.S.C. 102(b) as being anticipated by Azuma et al. (JP 62-139465).

Regarding claims 128-130, 132, 133, Azuma et al. disclose (see Figs.) an imaging device, comprising: an image sensor subassembly including an image sensor (6) mounted on a printed circuit board (8); a substantially rigid optical subassembly (7), the optical subassembly including an optical element (5) disposed on a substantially rigid member; a solderable surface (rod 10 (e.g. pin); hole; see Fig. 9) formed on each of the optical subassembly and the circuit board defining a pair of solder receiving interfaces; and a solder material (solder 20; see Fig. 9) for bonding the subassemblies disposed between the solder-receiving interface. Azuma et al. also disclose (see Fig. 4) the device partially defining a feed path (of the web (2)). The housing of the image reader inherently serves as a handle. The solder forms such that the image sensor subassembly and the optical subassembly are fixedly adhered to one another.

9. Claims 73-75 and 128-130 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi (JP 05-075796).

Regarding claims 73-75 and 128-130 Takeuchi discloses (see Figs. 2 and 5) an imaging device, comprising: an image sensor subassembly including an image sensor (1) mounted on a printed circuit board (2); a substantially rigid optical subassembly (3), the optical subassembly including an optical element (4) disposed on a substantially rigid member; a planar solderable surface (2a-2d; at top surface of leg at 3a, 3b) formed on each of the optical subassembly and the circuit board defining a pair of solder receiving interfaces; and a solder material (see Fig. 2) for bonding the subassemblies disposed between the solder-receiving interface. Takeuchi also discloses (see Fig. 7) the device partially defining a feed path. The housing of the image reader

inherently serves as a handle. The solder forms such that the image sensor subassembly and the optical subassembly are fixedly adhered to one another.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 111-116, 118, 119, 135 and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al. in view of Reed (U.S. Patent 4,823,277).

Regarding claims 111-116, 118, 119, 135 and 136, Azuma et al. disclose the claimed invention as set forth above. Azuma et al. further disclose (see Figs.) a pin (10) forming a solder receiving surface and the circuit board includes a hole (hole, not labeled) for receiving the pin; and (see Fig. 4) the device encapsulated in a housing (of the image reader). The solder bonds such that the image sensor subassembly and the optical subassembly are fixedly adhered to one another. Azuma et al. do not disclose a metal plated hole as claimed. Reed teaches (see col. 2, lines 1-14) the advantageous of a circuit board having a metal plated through hole as claimed. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a through hole in the apparatus of Azuma et al. in view of Reed for more uniform solder flow and improved strength of the solder joint as taught.

12. Claims 117 and 120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al. in view of Reed and further in view of DelGuidice et al.

Regarding claims 117 and 120, Azuma et al. and Reed disclose the claimed invention as set forth above. Azuma et al. and Reed do not specifically disclose an irregular configuration having increased surface area as claimed. DelGuidice et al. teach (see col. 1, lines 60-65) that

an irregular solderable surface having increased surface area as claimed improves solder joint strength. It is also well known that threaded screws provide an increased surface area. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such an irregular surface or a threaded screw in the apparatus of Azuma et al. in view of Reed and DelGuidice et al. for improved strength of the solder joint as taught.

13. Claims 131 and 134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al. in view of DelGuidice et al.

Regarding claims 131 and 134, Azuma et al. disclose the claimed invention as set forth above. Azuma et al. do not specifically disclose an irregular configuration having increased surface area as claimed. DelGuidice et al. teach (see col. 1, lines 60-65) that an irregular solderable surface having increased surface area as claimed improves solder joint strength. It is also well known that threaded screws provide an increased surface area. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such an irregular surface or a threaded screw in the apparatus of Azuma et al. in view of DelGuidice et al. for improved strength of the solder joint as taught.

14. Claims 109 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Reed.

Regarding claims 109 and 110, Takeuchi discloses the claimed invention as set forth above. Takeuchi further disclose (see Figs.) a hole (in 2) and a pin (flat portion at 3b). Takeuchi does not disclose plating the hole with metallic solder receiving material for receipt of solder. However, the effect of providing more solder at the joint is predictable and would have been known at the time. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further provide solder in the hole of Takeuchi to further secure the subassemblies together. Further, Reed teaches (see col. 2, lines 1-14) the advantageous of a

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circuit board having a metal plated through hole as claimed. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a through hole in the apparatus of Azuma et al. in view of Reed for more uniform solder flow and improved strength of the solder joint as taught.

### ***Response to Arguments***

15. Applicant's arguments filed April 14, 2008 have been fully considered but they are not persuasive. Applicant's unsupported and conclusory assertions are found to be not persuasive.

16. Applicant's arguments with respect to the other claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is 571-272-2441. The examiner can normally be reached on M-F 6:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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/Thanh X Luu/

Primary Examiner, Art Unit 2878